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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,128	05/19/2006	Michael Holzemer	LYBZ 200104US01	9229
27885	7590	09/07/2010		
FAY SHARPE LLP 1228 Euclid Avenue, 5th Floor The Halle Building Cleveland, OH 44115			EXAMINER KASTURE, DNYANESH G	
			ART UNIT 3746	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/580,128	<b>Applicant(s)</b> HOLZEMER ET AL.	
	<b>Examiner</b> DNYANESH KASTURE	<b>Art Unit</b> 3746	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-17 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 and 12-15 is/are allowed.
- 6) ☒ Claim(s) 10 and 16 is/are rejected.
- 7) ☒ Claim(s) 17 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. All previously made claim objections are hereby withdrawn in view of amendments to the claims submitted on 16 August 2010.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 10 and 16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

4. In Re Claim 10, the phrase "processor PROGRAMMED to" is not supported by the original specification. Page 4 of applicant's specification states that the drive motor control comprises a processor, and describes the processor as being capable of evaluating signals from the inlet pressure sensor and converting the signals to an indication format. The inlet pressure signals are evaluated by the drive motor control, and not the processor, with regards to controlling the drive motor. The following is an example of a system that does not require the processor to be programmed to control

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the drive motor: The drive motor control could comprise an operator in addition to the processor. The operator could read the indicator which displays the inlet pressure sensor signals in an indication format (Line 29 of applicant's specification on Page 4). Based on the indicated pressure, the operator could then determine the corresponding speed from "storage" (continuous curve), and set the motor to operate at the determined speed. As evident from this example, the processor does not need to be programmed with the recited method steps. Note that applicant's processor comprises storage for the pressure-speed relationship and the processor is also linked to an indicator, therefore it is capable of indicating the recommended speed corresponding to the pressure sensor readings. Note also that "processor" does not necessarily imply a micro-processor. The limitations pertaining to programming the processor (Last 10 lines of the claim) have therefore not been given patentable weight.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 10, 16, 17 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. In Re Claim 10, the phrase "lower speed value n" in Line 9 of the claim is inconsistent with the specification which specifies  $n_2$  as the lower speed value. Further,

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the phrase "a lower limit pressure  $p_2$ " in Line 18 should be -- the lower limit pressure  $p_2$  -- because this phrase has already been defined in Line 11.

8. In Re Claim 17, the items "(a)", "(b)" and "(c)" are presented in a way that is indefinite. The applicant appears to claim how the inlet pressure relates to speed in three different ranges (a), (b) and (c), yet the phrase "and in at least one of" could exclude (b) or (c). If the alteration range is always present, then why is label (a) provided in addition to (b) and (c) ? Claim 10 for instance uses label (a) for the upper range and label (b) for the lower range. The following language relating to label (a) makes it more unclear: "inlet pressure  $p$  in (a) an alteration range". Finally, what happens "IN at least one of (b) .. .. and (c) .." ?, this section of the sentence is incomplete. Note that the phrase "being associated with a lower range" should be -- being associated with the lower range -- since the lower range has been defined in the previous line. Note also that the phrase "corresponding to the current inlet pressure" should include the symbol " $p$ " to be consistent. The phrase should therefore be -- corresponding to the current inlet pressure  $p$  --.

9. All other 112 rejections made in the previous office action are withdrawn in view of amendments to the claims submitted on 16 August 2010.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. As best supported by the specification, Claims 10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando (US Patent 6,375,431 B1) in view of Sabini et al (PG Pub US 20010041139 A1)

12. As best supported by the specification, In Re Claim 10, with reference to Figures 1 and 4, Ando discloses a positive displacement vacuum pump ("B") comprising a drive motor (173), an inlet pressure sensor (inherent from pressure measurements at suction port that generate the data in Figure 7) and a drive motor control that is implied from the following disclosure in Column 7, Lines 16-29: "In the evacuating apparatus of this invention, a driving motor for each of the booster screw vacuum pump and the roughing screw vacuum pump is rotated at as high a rotating speed as possible as far as the motor is not overloaded, to shorten the exhaust time, in a range where the suction side pressure of the booster screw vacuum pump is relatively high. When the suction side pressure of the booster screw vacuum pump has reached the ultimate pressure or BECOME A RELATIVELY LOW PRESSURE, the rotating speed of the driving motor for the booster screw vacuum pump is REDUCED to the lowest rotating speed to maintain a degree of vacuum required for the evacuated chamber, and the rotating speed of the

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driving motor for the roughing screw vacuum pump is reduced to as low a rotating speed as possible ..". The drive motor control operates on a continuous curve of pressure versus speed in an upper range, alteration range and lower range as follows:

- an upper range: "a driving motor for the booster screw vacuum pump and the roughing screw vacuum pump is rotated at AS HIGH A ROTATING SPEED AS POSSIBLE"; the "as high rotating speed as possible" corresponds to applicant's  $n_1$
- an alteration range: "when the suction side pressure of the booster screw pump has ... BECOME A RELATIVELY LOW PRESSURE ... the rotating speed of the driving motor of the roughing screw vacuum pump is REDUCED TO AS LOW A ROTATING SPEED AS POSSIBLE"; the "relatively low pressure" corresponds to applicant's  $p_1$ , the "as low a rotating speed as possible" corresponds to  $n_2$ ; note that as long as the motor is running the pressure will continue to drop, the motor takes time to reduce speed from  $n_1$  to  $n_2$  because of the inertia of the motor (will not be an abrupt drop), in the time that it takes the motor to reduce from  $n_1$  to  $n_2$ , the pressure will have reduced from  $p_1$  to  $p_2$  (the pressure will continue to drop since the motor is running)
- a lower range: represented by the time it takes for the pressure to drop from  $p_2$  down to ultimate pressure after the motor speed is reduced to its "lowest possible"; the speed is maintained at its lowest possible as the pressure approaches ultimate pressure

13. However, Ando does not disclose a storage that stores a curve which indicates a respective speed  $n$  of the drive motor for each inlet pressure value  $p$  as the pressure continuously drops.

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14. Nevertheless, with reference to Figure 1, Sabini et al discloses pump (40) comprising a drive motor (30), an inlet pressure sensor (1), a drive motor control (10) that controls the speed of the motor (Paragraph [0029]: “.. alter the current motor speed ..”) in dependence at least partly on the readings from the inlet pressure sensor that indicates inlet pressure value  $p$

- the drive motor control comprises a storage that is capable of storing a continuous curve (for high sampling rates) which indicates a respective speed  $n$  for each inlet pressure  $p$  as suggested in the abstract: “The controller comprises a storage device for storing data indicative of at least one operating condition ..” where speed and pressure are operating parameters and the controller is capable of “storing data values and tables associated with pump OPERATING conditions and PARAMETERS” (Paragraph [0029]. Paragraph [0029] also states: “The controller comprises a processor 12 such as a microprocessor operative to perform software functions which UTILIZE THE SENSOR SIGNALS or sensor data obtained from each of the pump sensors TO DETERMINE THE PUMP OPERATING CONDITIONS”

15. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the pump configuration of Ando to incorporate sensors that measure speed and inlet pressure, and a controller that stores the sensor readings during operation as taught by Sabini et al for the purpose of detecting an abnormal operating condition if one exists as suggested in Paragraph [0029] of Sabini et al: “.. the software functions to generate an alarm condition associated with a particular operating parameter ..”. The modified Ando device is capable of measuring and storing pressure



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and speed readings as the pressure drops first across the upper range, then the alteration range and then the lower range until ultimate pressure is reached.

16. In Re Claim 16, Ando discloses a high vacuum pump ("A") as claimed.

***Allowable Subject Matter***

17. Claims 1-9, 12-15 are allowed.

18. The following is a statement of reasons for the allowance: The prior art does not disclose the combined method steps of: storing a continuous curve, determining the inlet pressure value  $p$ , determining from the curve, the speed  $n$  associated with the determined inlet pressure value  $p$  in the curve and operating the drive motor at the determined speed  $n$ , the determined speed value being less than or equal to the upper speed value  $n_1$  (Claim 1)/ the speed  $n$  being equal to or greater than the lower speed value  $n_2$  (Claim 3).

19. Claim 17 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

20. Claim 20 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

21. The following is a statement of reasons for indicating allowable subject matter for Claims 17 and 20: Claim 17 has been analyzed as a HYBRID claim which includes

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apparatus and method limitations. The last paragraph of the claim is a sequence of method steps, whereas the rest of the claim has apparatus limitations. The apparatus limitations are prior art, however, the combination of method steps in the last paragraph of this claim are not disclosed by the prior art.

### ***Response to Arguments***

22. Applicant has not made any specific arguments against the grounds of rejection in the prior office action.

### ***Conclusion***

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DNYANESH KASTURE whose telephone number is (571)270-3928. The examiner can normally be reached on Mon-Fri, 9:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272 - 7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/  
Supervisory Patent Examiner, Art  
Unit 3746

DGK